**Dynamics Problems for July 5th, 2013 – In Class**

1. An Atwood Machine consists of two masses of 3.8kg and 4.2kg. What is the acceleration of the masses? What is the tension in the rope?
2. A 0.700kg mass is connected to a 1.50kg lab cart by a cable passing over a low-friction pulley. How fast does the cart accelerate and what is the tension in the cable, assuming no friction?
3. You are holding an 85kg trunk at the top of a ramp that slopes from a moving van to the ground, making an angle of 35 with the ground. If the coefficient of friction between the trunk and the ramp is 0.42, what is the tension in the rope?
4. You are holding an 85kg trunk at the top of a ramp that slopes from a moving van to the ground, making an angle of 35 with the ground. You lose your grip and the trunk begins to slide.
   1. If the coefficient of friction between the trunk and the ramp is 0.42, what is the acceleration of the trunk?
   2. If the trunk slides 1.3m before reaching the bottom of the ramp, for what time interval did it slide?

Extra Projectile

1.) During training, an aerial skier takes off from a ramp that is inclined at 40.0° to the horizontal and lands in a pool that is 10.0 m below the end of the ramp. If she takes 1.50 s to reach the highest point of her trajectory, calculate:

a.) the speed at which she leaves the ramp (22.9)

b.) the maximum height above the end of the ramp that she reaches (11)

c.) the time for which she is in mid-air (3.57)

2.)

